

## IUBMB Enzyme Nomenclature

**EC 2.5.1.32**

**Common name:** geranylgeranyl-diphosphate geranylgeranyltransferase

**Reaction:** 2 geranylgeranyl diphosphate = diphosphate + prephytoene diphosphate

For reaction pathway [click here](#).

**Other name(s):** prephytoene-diphosphate synthase; phytoene synthase; phytoene synthetase

**Systematic name:** geranylgeranyl-diphosphate:geranylgeranyl-diphosphate geranylgeranyltransferase

**Links to other databases:** [BRENDA](#), [EXPASY](#), [KEGG](#), [WIT](#), CAS registry number: 57219-66-6 and 50936-61-3

**References:**

1. Gregonis, D.E. and Rilling, H.C. The stereochemistry of *trans*-phytoene synthesis. Some observations on lycopersene as a carotene precursor and a mechanism for the synthesis of *cis*- and *trans*-phytoene. *Biochemistry* 13 (1974) 1538-1542. [Medline UI: [74133855](#)]
2. Maudinas, B., Bucholtz, M.L., Papastephanou, C., Katigar, S.S., Bredis, A.V. and Porter, J.W. Adenosine 5'-triphosphate stimulation of the activity of a partially purified phytoene synthetase complex. *Biochem. Biophys. Res. Commun.* 66 (1975) 430-436. [Medline UI: [76018524](#)]

[EC 2.5.1.32 created 1984]

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## IUBMB Enzyme Nomenclature

**EC 1.14.99.30**

**Common name:** carotene 7,8-desaturase

**Reaction:** neurosporene +  $\text{AH}_2$  +  $\text{O}_2$  = lycopene + A + 2  $\text{H}_2\text{O}$

For reaction pathway [click here](#).

**Other name(s):**  $\zeta$ -carotene desaturase

**Systematic name:** carotene, hydrogen-donor:oxygen oxidoreductase.

**Comments:** also acts on  $\zeta$ -carotene twice to give lycopene and converts  $\beta$ -zeacarotene to  $\gamma$ -carotene, and pro- $\zeta$ -carotene to polycopene (via double reaction)

**Links to other databases:** [BRENDA](#), [EXPASY](#), [KEGG](#), [WIT](#), CAS registry number: 115300-02-2 (171716-20-4, 154768-69-1 and 184853-38-1)

**References:**

1. Albrecht, M., Linden, H. and Sandmann, G. Biochemical characterization of purified  $\zeta$ -carotene desaturase from *Anabaena* PCC 7120 after expression in *E. coli*. *Eur. J. Biochem.* 236 (1996) 115-120. [Medline UI: [96184887](#)]

[EC 1.14.99.30 created 1999]

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